WE CLAIM:

1. An isolated polynucleotide of Figure 4A (Seq. ID NO. 3), said polynucleotide comprising the DNA sequence encoding the amino acid sequence of the light chain variable (VK) region of the LL2 monoclonal antibody (mAb).

2. An isolated polynucleotide of Figure 4B (Seq. ID NO. 4), said polynucleotide comprising the DNA sequence encoding the amino acid sequence of the heavy chain variable (VH) region of the LL2 mAb.

3. An isolated polynucleotide of Figure 5A (SEQ. ID NO. 5), said polynucleotide comprising the DNA sequence encoding the amino acid sequence of the hLL2 VK domain.

4. An isolated polynucleotide of Figure 5B (SEQ. ID NO. 6), said polynucleotide comprising the DNA sequence encoding the amino acid sequence of the hLL2 VH domain.

5. A protein encoded by the polynucleotides of any one of claims 1 to 4, inclusive.

6. An isolated complementarity determining region-1 (CDR1) polypeptide of the VK region of the LL2 mAb, comprising the amino acid sequence (SEQ ID NO. 19):

KSSQSVLYSANHKNYLA

7. An isolated CDR2 polypeptide of the VK region of LL2 mAb, comprising the amino acid sequence (SEQ ID NO. 20):

WASTRES

8. An isolated CDR3 polypeptide of the VK region of the LL2 mAb, comprising the amino acid sequence (SEQ ID NO. 21):

HQYLSSWTF

9. An isolated CDR1 polypeptide of the VH region of the LL2 mAb, comprising the amino acid sequence (SEQ ID NO. 22):

SYWLH

10. An isolated CDR2 polypeptide of the VH region of the LL2 mAb, comprising the amino acid sequence (SEQ ID NO. 23):

YINPRNDYTEYNQNFKD

11. An isolated CDR3 polypeptide of the VH region of the LL2 mAb, comprising the amino acid sequence (SEQ ID NO. 24):

RDITTFY

12. The polynucleotide of Claim 1 inserted into a VKpBR plasmid.

13. The polynucleotide of Claim 2 inserted into a VHpBS plasmid.

14. A plasmid of Claim 12 or Claim 13, further comprising an Ig promoter and a signal peptide sequence.

15. A polynucleotide of Claim 1 or Claim 3 incorporated into a mammalian expression vector, designated LL2pKh, said vector further comprising an Ig promoter, a signal peptide DNA sequence, a genomic sequence of the human kappa constant region, an Ig enhancer, a kappa enhancer, and a marker gene.

16. A polynucleotide of Claim 2 or Claim 4 incorporated into a mammalian expression vector, designated LL2pK1g, the vector further comprising an Ig promoter, a signal peptide DNA sequence, a genomic sequence of a human IgG1 constant region, an Ig enhancer and a marker gene.

17. A cLL2 mAb, comprising the light chain and heavy chain chains of the mLL2 mAb linked to the human kappa and human IgG_1 constant regions, respectively.

18. A hLL2 mAb, comprising a light chain and a heavy chain complementarity-determining region of a mLL2 mAb joined to a framework sequence of a human VK and human VH region, respectively, linked to human kappa and IgG_1 constant region domains, respectively, such that said hLL2 mAb retains substantially the B-lymphoma cell and leukemia cell targeting and cell internalization characteristics of the parent mLL2 antibody.

19. A conjugate, comprising a cLL2 or hLL2 antibody or fragment thereof covalently bound to a diagnostic or therapeutic reagent.

20. A conjugate of Claim 19, wherein said diagnostic reagent comprises a label.

21. A conjugate of Claim 19, wherein said therapeutic reagent comprises a cytotoxic agent.

22. A conjugate of Claim 19, wherein said reagent is bound to said antibody or fragment thereof by means of a carbohydrate moiety of said antibody or fragment thereof.

23. A method of treating a B-cell lymphoma or leukemia in a subject, comprising the step of administering to said subject a therapeutically effective

amount of the conjugate of Claim 21 formulated in a pharmaceutically acceptable vehicle.

24. A method of diagnosing a B-cell lymphoma or leukemia cell in a subject, comprising the steps of administering to said subject a diagnostically effective amount of the conjugate of Claim 20 formulated in a pharmaceutically acceptable vehicle, and detecting said label.